

REMARKS

Applicants appreciate the time taken by the Examiner to review Applicants' present application. This application has been carefully reviewed in light of the Official Action mailed August 22, 2006. Applicants respectfully request reconsideration and favorable action in this case.

Claim Status

Claims 1-23 were pending. Claims 1-23 were rejected. Claims 1, 11, 16 and 23 are amended herein. In Claims 1 and 23, "using" has been substituted for "from" such that Claims 1 and 23 now recite: "identifying at least a portion of the blocks of data as corresponding to one of the threads using the log." The purpose of this substitution is to clarify the affected claim limitation: this substitution is not intended modify the scope of Claims 1 and 23 in any way.

I. Hattrup Not Available as a Reference

As an initial matter, Applicants respectfully submit that Hattrup is not prior art under 35 U.S.C. 102(e). Applicant invented the subject matter of rejected Claims 1-23 prior to the effective date of Hattrup. The effective date of Hattrup is the filing date, May 23, 2003. The attached Declaration Under 37 C.F.R. 1.131 established that Applicant invented the subject matter of rejected Claims 1-23 at least as early as July 12, 2002. The Declaration states that Steve Justiss and Rob Sims, employees of Crossroads Systems, Inc. are original joint inventors of the invention described in the present Application. The Declaration further states that as early as July 12, 2002, Robert Sims and Steve Justiss conceived the invention of the present Application. A copy of an invention disclosure form evidencing conception at least as early as July 12, 2002 is attached as Exhibit A to the Declaration. The Declaration further states that Mark Berrier of Gray Cary sent Steve Justiss and Rob Sims a letter including a draft application describing the present Application on February 21, 2003 and that the application was filed on August 7, 2003. A copy of the February 21, 2003 letter and draft application is also attached hereto as Exhibit B of the Declaration. Support for the invention and corresponding claims can at least be found at paragraphs 0010-0012, 0042-0044, 0046 and 0053-0054 of the draft application. Applicants therefore respectfully submit that the date of invention of the present application was prior to the effective date of the Hattrup reference.

II. Rejections under 35 U.S.C. § 103

A. Introduction

Claims 1-10 and 23 were rejected as obvious over U.S. Patent No. 2004/0243736 ("Hatrup") in view of U.S. Patent No. 6,892,199 ("Hong").

Claims 11-22 were rejected as obvious over U.S. Patent No. 6,892,199 ("Hong") in view of U.S. Patent No. 2004/0243736 ("Hatrup").

Claims 1-23 were rejected as obvious over Applicant's Admitted Prior Art and further in view of U.S. Patent No. 5,950,219 ("Howard") and *Microsoft Tape Format Specification*.

In order to establish a prima facie case of obviousness, the Examiner must show: that the prior art references teach or suggest all of the claim limitations and that there is some suggestion or motivation in the references (or within the knowledge of one of ordinary skill in the art) to modify or combine the references and that there is a reasonable expectation of success of such combination. M.P.E.P. 2142, 2143; In re Vaeck, 947 F. 2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

B. Hatrup and Hong Rejection: Prima Facie Case Fails without Hatrup

Claims 1-10 and 23 were rejected as obvious over U.S. Patent No. 2004/0243736 ("Hatrup") in view of U.S. Patent No. 6,892,199 ("Hong").

Claims 11-22 were rejected as obvious over U.S. Patent No. 6,892,199 ("Hong") in view of U.S. Patent No. 2004/0243736 ("Hatrup").

The Examiner relies on Hatrup to show where various features of the present invention can be found. As Hatrup is not a proper prior art reference, Applicants respectfully request that the Examiner point out where the features for which the Examiner relied on Hatrup can be found in the Hong reference or withdraw this rejection.

C. Howard and APA Rejection

Claims 1-23 were rejected as obvious over Applicant's Admitted Prior Art and further in view of U.S. Patent No. 5,950,219 ("Howard") and *Microsoft Tape Format Specification*.

Claims 1, 11, 16 and 23

Applicant respectfully submits APA, Howard and *Microsoft Tape Format Specification* do not teach each of the claim limitations and therefore do not provide sufficient basis for a prima facie case of obviousness. Claim 1 recites:

A method for retrieving data from a sequential storage device on which blocks of data corresponding to multiple threads are stored in an intermingled fashion, comprising:

- reading a log, wherein the log identifies a sequence in which blocks of data corresponding to multiple threads are stored on a sequential storage device, wherein each thread corresponds to an Extended Copy command;
- identifying at least a portion of the blocks of data as corresponding to one of the threads from the log; and
- indexing to the location of the identified portion of the blocks of data in the sequence in which blocks of data corresponding to multiple threads are stored on the sequential storage device according to the log.

Thus, Claim 1 recites: "blocks of data corresponding to multiple threads are stored on a sequential storage device, wherein each thread corresponds to an Extended Copy command." Independent Claims 11, 16 and 23 recite similar limitations. The Extended Copy command is not simply a read/write command, but is a command that requests movement of potentially a large amount of data. A single extended copy command may necessitate many reads and writes. The Extended Copy command can be issued to a "copy manager" or "data mover." The copy manager, rather than the server, can become responsible for moving the data. Serverless backup (i.e., the use of the copy manager in conjunction with the server) provides the advantage that a server can concentrate on running a network instead of being weighed down with running backup tasks, thus improving network performance.

Prior to the present invention, copy managers processed Extended Copy commands one at a time, so that each thread was relatively easy to locate. However, as described in the specification, Crossroads developed a mechanism for simultaneously processing multiple Extended Copy commands such that data corresponding to various Extended Copy commands is intermingled on a tape (or other storage medium). The present application describes a system for logging restoring data for an Extended Copy command thread intermingled with data

from other Extended copy command threads using a log that identifies the thread to which each block of data belongs.

Howard, on the other hand, appears to be drawn to processing client jobs using a server. See Howard, Figure 1. In Howard, client jobs are associated with server jobs: presumably, pending server jobs are carried out using a server. See Howard, column 5, lines 13-15, 26-30 and 36-50. There is nothing in Howard that suggests that the client jobs or even the server jobs correspond to the Extended Copy command such that blocks from multiple Extended Copy commands are intermingled.

Furthermore, the portions of the related art sections that discuss concurrent Extended Copy commands do not teach intermingling threads or are not prior art. Paragraph 0005 of the Patent Specification describes a system in which a copy manager uses pre-fetch or read-ahead algorithms to stream a single thread at a time (i.e., blocks from multiple threads are not intermingled). Paragraph 0007 describes work by inventor Steve Justiss, but does not provide any details as to how intermingling occurs. Moreover, there is no admission that the referenced disclosure is "prior art", rather it is "related art" for which Inventor Justiss drafted an invention disclosure.

If the previous method of processing Extended Copy commands is combined with Howard, this would at most suggest that the data of the Extend Copy commands is written to the sequential access device on a thread by thread basis (using pre-fetch), even if Extended Copy commands are received concurrently. The *Microsoft Tape Format Specification* does not change the manner in which Extended Copy commands are processed should be changed.

Applicant respectfully submits that because Howard does not teach backup in the context of the Extended Copy command, because paragraph 0005 is inapposite to what the Examiner cites it for, because paragraph 0007 is not in fact prior art and because the *Microsoft Tape Format Specification* does not teach blocks of data corresponding to multiple threads are stored on a sequential storage device or threads corresponding to an Extended Copy command, Claim 1 is nonobvious in light of the cited prior art. For similar reasons, Independent Claims 11, 16 and 23 and all dependant claims are submitted to be nonobvious in light of the cited prior art. According, withdrawal of this rejection is respectfully requested.

Claims 1 and 23

Claim 1 recites: "identifying at least a portion of the blocks of data as corresponding to one of the threads using the log." Claim 23 recites similar limitations.

Applicant respectfully submits that the write log of the present invention differs from the catalog taught by Howard. The instant invention teaches identifying desired blocks of data using a write log such that "it is only necessary to index into the recorded sequence of blocks to locate the desired block." See Specification, paragraph 0046. Thus it is possible to use the write log to locate a desired block in a recorded series of blocks without having to read through undesired blocks, portions of data or metadata contained in blocks. See Specification, paragraphs 0045-0046 and 0048-0049. The write log records the thread to which a particular block belongs such that each entry in the write log "includes an identifier of the thread to which the corresponding blocks belong." See Specification, paragraph 0043.

Applicant interprets the catalog of Howard as a listing of associations between client jobs and server jobs. See Howard, column 5, lines 48-50 and column 6, lines 30-35. Applicant respectfully submits that Howard does not teach or suggest that the thread to which a particular block belongs can be determined from the log such that blocks of data "corresponding to one of the threads" can be identified "using the log." Instead, Howard indicates that to the extent the dataset to which a block belongs can be determined, this information is stored in the data packet encoding, not the catalog. Specifically, Howard states:

Alternatively, if sufficient data from the respective source has been received, a data packet is created (80). This includes identification of the source or sources of the data associated with the data packet, as well as identification of individual records or files within the data packet. Thereafter, the data packet is transmitted (82) to the tape subsystem where it is stored (84) as it is received (i.e., interleaved).

While not specifically illustrated, the method of the present invention also provides for retrieval of the data packets and the individual records or files therein to a requesting source. As previously described, this is accomplished using the prior encoding of the data packets to identify the dataset or datasets with which they are associated, as well as the individual records or files within the dataset or datasets. As also previously described, retrieval includes "unpacking" (or "de-blocking") of the individual records or files within each data packet (or superblock). See Howard, column 14, lines 41-58.

The above cited excerpt indicates that the dataset to which a particular data packet belongs is determined using information contained in the data packet encoding, not a catalog or other log. If the Examiner disagrees, Applicant respectfully requests the Examiner point out where Howard teaches "identifying at least a portion of the blocks of data as corresponding to one of the threads using the log" such that a desired block can be accessed without having to

scan or read through undesired blocks, portions of data or metadata contained in blocks. Otherwise, Applicant respectfully requests allowance of Claims 1 and 23.

Claims 11 and 16

Claim 11 recites: "recording the order in which the blocks of data are stored in a log, wherein the log identifies the thread to which each block belongs such that a copy manager can index to a particular block of data without reading each of the preceding stored blocks of data or associated metadata." Claim 16 recites similar limitations.

For reasons set forth above, Applicant respectfully submits that the write log of the present invention differs from the catalog taught by Howard. As shown above, the present invention teaches using a write log to locate a desired block in a recorded series of blocks without having to read through undesired blocks, portions of data or metadata contained in blocks. See Specification, paragraphs 0045-0046 and 0048-0049. The write log records the thread to which a particular block belongs such that each entry in the write log "includes an identifier of the thread to which the corresponding blocks belong." See Specification, paragraph 0043. Applicant interprets the catalog of Howard as a listing of associations between client jobs and server jobs. See Howard, column 5, lines 48-50 and column 6, lines 30-35. While the catalog of Howard may provide information allowing the general location of a dataset (rather than individual packets) to be determined, Applicant respectfully submits that Howard does not teach or suggest using a write log such that "a copy manager can index to a particular block of data without reading each of the preceding stored blocks of data or associated metadata." Instead, Howard teaches a catalog which associates client jobs with server jobs and encoding the source from which a particular piece of data came in the packet information. If the Examiner disagrees, Applicant respectfully requests that the Examiner point out where this feature can be found in Howard or allow Claims 11 and 16.

CONCLUSION


Applicant respectfully requests that the Examiner withdraw his rejections of Claims 1, 11, 16 and 23 and the respective dependant claims. Applicant has now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include an acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests full allowance of Claims 1-23. The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

An extension of one (1) month is requested and a Notification of Extension of Time Under 37 C.F.R. § 1.136 with the appropriate fee is enclosed herewith.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

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